NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue Washington, D.C. 20418

Commission on Life Sciences
Commission on Behavioral and Social Sciences and Education
Commission on Physical Sciences, Mathematics, and Applications

Prospectus
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DNA Forensic Science: An Update

In 1992 the National Research Council (NRC) published *DNA Technology in Forensic Science*. The report was immediately cited in court cases as the consensus of scientific opinion for determining the admissibility of DNA typing as evidence and for specifying the statistical approaches to be used in interpreting the data from this source of forensic information. Since its publication, the report has been the subject of close attention and debate. Some scientists have been critical of the conservative statistical approach. Forensic scientists have claimed that ambiguities of language in the report permit lawyers to use the same evidence to arrive at very different conclusions. At the same time, some appellate courts have begun remanding cases because of concerns about the validity of DNA evidence, despite the clear endorsement of such evidence in the NRC report.

The National Research Council has been considering how best to respond to the debate. The Director of the FBI has written to NAS President Dr. Frank Press asking that the NRC help in resolving the issues. A major factor in his request is that new evidence exists, some of it prepared as a result of a recommendation in the report. He has asked that the NRC form a committee using molecular biologists, forensic scientists, and statisticians to prepare a new report.

In response, NRC is considering forming a committee of experts in molecular biology, statistics, population genetics, forensic science, and law, with a representative of the authoring committee of the 1992 report. This committee would:

- Review relevant recent information and current scientific understanding from human genetics, molecular biology, population genetics, statistics, and other appropriate fields, especially on the issue of population substructure; assess and clarify, in light of current evidence, the scientific basis, validity, and underlying assumptions of alternative approaches to the use of DNA evidence. This assessment will include the ceiling principle and point out common misunderstandings such as considering an incorrect population group or misinterpreting the meaning of the probability of a false match.
- Assess and describe the degree of certainty of DNA evidence in ways useful to the courts; consider sources of error such as differences among laboratories or techniques; and lay out alternative perspectives about the assumptions and assessments of uncertainty and describe their implications in court cases.

The committee will meet three times during the course of the study. As early as possible, a meeting will be held at which members receive briefings from designated agency personnel and a representative sample of critics of the earlier NRC report.

The target date for publication of the report is six months from receipt of funding. The document will be published for wide distribution, in accordance with NRC's policies and mandate. The audience will be the Department of Justice, the federal and state judiciaries, Congressional committees, state law enforcement agencies, other legal institutions, criminal lawyers, and scientists in disciplines related to statistics, molecular biology, population biology, and law. The estimated total cost of this project is $300,000.

Contact: Dr. Eric Fischer – Project Director and Director, Board on Biology and the Institute of Laboratory Animal Resources, NAS 358, 202-334-2215, fax: 202-334-1687; email: efischer@nas.edu